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L-14-247

10 CFR 50.73

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:
Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
LER 2014-002-00

Enclosed is Licensee Event Report (LER) 2014-002-00, "Manual Reactor Trip due to High Steam Generator Water Level During Plant Startup." This event is being reported in accordance with 10 CFR 50.73(a)(2)(iv)(A).

There are no regulatory commitments contained in this submittal. Any actions discussed in this document that represent intended or planned actions are described for the NRC's information, and are not regulatory commitments.

If there are any questions or if additional information is required, please contact Mr. William C. Cothen, Manager, Regulatory Compliance at 724-682-4284.

Sincerely,

E. A. Larson

Eric A. Larson

Enclosure – BVPS Unit 2 LER 2014-002-00

cc: Mr. W. M. Dean, NRC Region I Administrator
Mr. J. A. Krafty, NRC Senior Resident Inspector
Mr. J. A. Whited, NRR Project Manager
INPO Records Center (via INPO Consolidated Event System)
Mr. L. E. Ryan (BRP/DEP)

IE22
NRR

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 01/31/2017

Estimated burden per response to comply with this mandatory information collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of Digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Beaver Valley Power Station Unit Number 2	05000412	1 OF 3

4. TITLE

Manual Reactor Trip due to High Steam Generator Water Level During Plant Startup

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									None	
05	20	2014	2014	002	00	07	21	2014	FACILITY NAME None	DOCKET NUMBER

9. OPERATING MODE

Mode 1

10. POWER LEVEL

016

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER (*Include Area Code*)
William C. Cothen, Manager, Regulatory Compliance	724-682-4284

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT (*Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines*)

On May 20, 2014, at 0835 hours during a plant startup following the seventeenth refueling outage, Beaver Valley Power Station (BVPS) Unit 2 operations personnel manually tripped the reactor when it was recognized that the pre-determined trip criteria of 85 percent narrow range water level in the 'A' Steam Generator would be met. This manual trip criterion was reached after the steam generator water level began to oscillate following the start of the second condensate pump. Due to low decay heat input the main steam line isolation valves were shut in order to limit reactor coolant system cool down. Plant trip response was as expected without complications, and all control rods fully inserted in the core.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in the valid manual or automatic actuation of any of the systems listed in (a)(2)(iv)(B) – (1) Reactor Protection System (RPS) and (2) Multiple Main Steam Isolation Valves (MSIVs). A 10 CFR 50.72 notification was made at 1052 hours on May 20, 2014, to report the manual reactor trip and main steam line isolation (EN# 50124).

The cause of this event has been determined to be the lack of an integrated secondary startup procedure. Station operating procedures will be revised to prevent recurrence.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Beaver Valley Power Station Unit Number 2	05000412	2014	- 002	- 00	2 OF 3

NARRATIVE

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

CONDITIONS PRIOR TO OCCURRENCE:

Unit 2: Mode 1, 16% power, 558 degrees F, 2225 psig

There were no systems, structures, or components (SSCs) that were inoperable at the start of the event that contributed to the event.

DESCRIPTION OF EVENT

On May 20, 2014 Beaver Valley Power Station (BVPS) Unit 2 was performing a plant startup from its seventeenth refueling outage. A manual reactor trip criterion of 85 percent narrow range water level in any steam generator [SG] was established with the operators. A single condensate [SD] pump [P] was in operation supplying the one main feedwater [SJ] pump [P] that was in operation. As reactor power was raised, feedwater flow to the steam generators increased requiring the start of a second condensate pump. The start of the second condensate pump resulted in an oscillation of the steam generator water levels. A manual reactor trip was performed when it was recognized that the pre-determined trip criteria of 85 percent narrow range water level in the 'A' Steam Generator would be met. Due to low decay heat input the main steam line [SB] isolation valves [ISV] were shut in order to limit the reactor coolant system [AB] cool down. The plant trip response was as expected without complications, and all control rods [AA] fully inserted in the core. The operators entered E-0 (Reactor Trip or Safety Injection) then transitioned to ES-0.1 (Reactor Trip Response) and stabilized the plant in Mode 3.

CAUSE OF EVENT

The cause of this event has been determined to be the lack of an integrated secondary startup procedure. The lack of an integrated secondary startup procedure resulted in having only one condensate pump in service supplying the one main feedwater pump in operation. Starting the second condensate pump with the plant at 16% reactor power with the bypass feedwater regulating valves in service resulted in oscillating steam generator water levels and subsequently reaching the high steam generator water level trip criteria.

ANALYSIS OF EVENT

BVPS Unit 2 performed a manual reactor trip from approximately sixteen percent power when it was recognized that the pre-determined trip criteria of 85 percent narrow range water level in the 'A' Steam Generator would be met. Due to low decay heat input the main steam line isolation valves were manually shut in order to limit the reactor coolant system cool down.

The safety significance associated with the BVPS Unit 2 manual reactor trip that occurred on May 20, 2014, due to reaching the pre-determined steam generator narrow range water level manual reactor trip criteria is considered to be very low. This is based on the change in core damage frequency and change in the large early release frequency for this event.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a condition that resulted in the valid manual or automatic actuation of any of the systems listed in (a)(2)(iv)(B) – (1) Reactor Protection System (RPS) and (2) Multiple Main Steam Isolation Valves (MSIV). A 10 CFR 50.72 notification was made at 1052 hours on May 20, 2014, to report the manual reactor trip and main steam line isolation (EN# 50124).

CORRECTIVE ACTIONS

1. BVPS Unit 2 startup procedures will be revised to incorporate an integrated secondary plant startup procedure.

2. Additional training of the operators is being evaluated.

Completion of the above and other corrective actions are being tracked through the BVPS Corrective Action Program.

PREVIOUS SIMILAR EVENTS

A review of past Beaver Valley Power Station Licensee Event Reports over a five year period found one similar previous event involving a manual reactor trip due to changing steam generator levels at low power level.

BVPS Unit 2 LER 2011-002-00 "Auxiliary Feedwater System Vent line Crack Results in Technical Specification Required Plant Shutdown and Valid Reactor Protection System / Engineered Safety Feature Actuation System Actuations"

CR 2014-09256